

حمل الآن

مجاناً وحصرياً

المراجعة رقم (1)

اختبار شهر نوفمبر





Test 1

1 Choose the correct answer from those given :

(1) If $\cos(990^\circ - \theta) = \frac{1}{2}$ where θ is measure of the smallest positive angle, then $\theta = \dots\dots\dots$

- (a) 30° (b) 150° (c) 210° (d) 330°

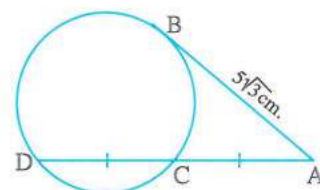
(2) If L, M are the two roots of the equation : $X^2 - 8X + c = 0$ and $L^2 + M^2 = 40$, then $c = \dots\dots\dots$

- (a) 8 (b) 10 (c) 12 (d) 14

(3) In the opposite figure :

$\overline{AB}$ is a tangent segment at B , C is the midpoint of $\overline{AD}$, $AB = 5\sqrt{3}$ cm., then $AD = \dots\dots\dots$ cm.

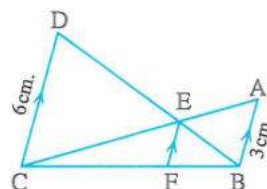
- (a) $2\sqrt{6}$ (b) $5\sqrt{6}$
(c) 5 (d) $2.5\sqrt{6}$



(4) In the opposite figure :

If $\overline{AB} \parallel \overline{EF} \parallel \overline{CD}$, then $EF = \dots\dots\dots$ cm.

- (a) 2.5 (b) 2
(c) 1.5 (d) 1



(5) If L, M are the two roots of the equation : $X^2 - 5X + 7 = 0$, then the equation whose two roots are L^2 and M^2 is $\dots\dots\dots$

- (a) $X^2 + 11X + 49 = 0$ (b) $X^2 - 11X + 49 = 0$
(c) $X^2 - 49X + 11 = 0$ (d) $X^2 + 11X - 49 = 0$

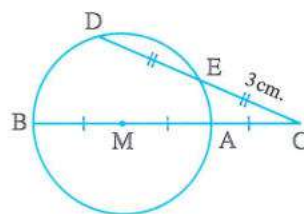
(6) The interval in which the function $f : f(X) = X^2 - 5X + 6$ is positive is $\dots\dots\dots$

- (a) $[2, 3]$ (b) $\mathbb{R} - \{2, 3\}$ (c) $\mathbb{R} - [2, 3]$ (d) $\mathbb{R} -]2, 3[$

(7) In the opposite figure :

The area of the circle $M = \dots\dots\dots \text{cm}^2$

- (a) 6π (b) 18π
(c) $2\sqrt{6}\pi$ (d) $\sqrt{6}\pi$



(8) The function $f : f(\theta) = 2 \sin 4\theta$ is a periodic function and its period equals

- (a) 2π (b) π (c) $\frac{\pi}{2}$ (d) $\frac{\pi}{4}$

(9) If L, M are the two roots of the equation : $X^2 - 5X - 6 = 0$

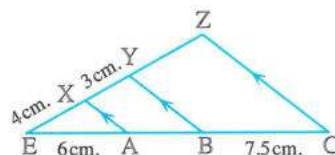
the numerical value of the expression : $L^2 - 5L + 3 = \dots\dots\dots$

- (a) -6 (b) 6 (c) 9 (d) 3

(10) In the opposite figure :

$AB + YZ = \dots\dots\dots$ cm.

- (a) 5 (b) 13
(c) 11 (d) 9.5

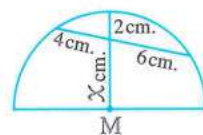


(11) In the opposite figure :

A semicircle of centre M

, then $X = \dots\dots\dots$ cm.

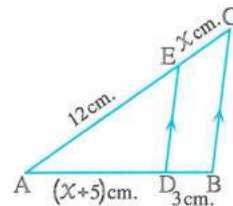
- (a) 5 (b) 7 (c) 8 (d) 12



(12) In the opposite figure :

$\overline{DE} \parallel \overline{BC}$, then $X = \dots\dots\dots$

- (a) 4 (b) 9
(c) 12 (d) 3



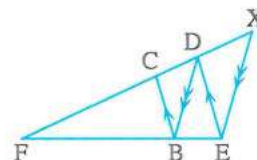
2 Answer the following questions :

(1) If $f_1(X) = X - 3$, $f_2(X) = 5 + 4X - X^2$, determine the sign of each of f_1, f_2 on the number line and determine the intervals at which the two functions are negative together.

(2) In the opposite figure :

$\overline{ED} \parallel \overline{BC}$, $\overline{DB} \parallel \overline{EX}$

Prove that : $\left(\frac{FB}{FE}\right)^2 = \frac{FC}{FX}$

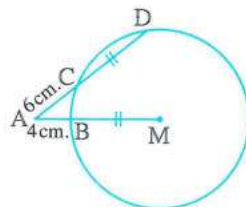


1 Choose the correct answer from those given :

(1) In the opposite figure :

If $DC = MB$, then the circumference of circle M = cm.

- (a) 15π (b) 18π
(c) 20π (d) 24π



(2) The function $f : f(x) = ax^2 + bx + c$ has one sign on $\mathbb{R}$ if

- (a) $b^2 - 4ac > 0$ (b) $b^2 - 4ac < 0$
(c) $b^2 - 4ac = 0$ (d) $b^2 - 4ac \geq 0$

(3) For every $n \in \mathbb{Z}$, the general solution of the equation : $\csc \theta = \sec(30^\circ + \theta)$ is

- (a) $60^\circ + 180^\circ n$ (b) $30^\circ + 360^\circ n$ (c) $60^\circ + 360^\circ n$ (d) $30^\circ + 180^\circ n$

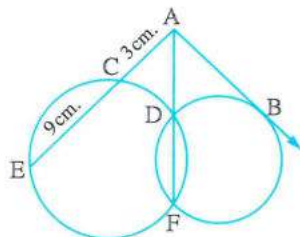
(4) If L, M are the two roots of the equation : $x^2 - 7x + 3 = 0$, then $L^2 + M^2 =$

- (a) 7 (b) 43 (c) 58 (d) 79

(5) In the opposite figure :

If $AC = 3$ cm. , $CE = 9$ cm.
 , then $AB =$ cm.

- (a) 27 (b) 36
(c) 9 (d) 6



(6) The quadratic equation in which each of its two roots more than the two roots of the equation : $x^2 - 3x + 2 = 0$ by 2 is

- (a) $x^2 - 3x + 2 = 0$ (b) $x^2 + 7x + 12 = 0$
(c) $x^2 - 7x + 12 = 0$ (d) $x^2 - 7x - 12 = 0$

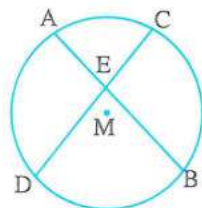
(7) In the opposite figure :

$\overline{AB} \cap \overline{CD} = \{E\}$, $AE = 4$ cm.

, $EB = 6$ cm. , $DE = (x + 1)$ cm.

, $CE = (x - 1)$ cm. , then $x =$ cm.

- (a) 5 (b) 6 (c) 4 (d) 7



(8) The minimum value of the function $f : f(\theta) = 1 + \sin 3\theta$ is

- (a) -3 (b) -2 (c) zero (d) -4

(9) If $\frac{2}{L}$, $\frac{2}{M}$ are the roots of the equation : $4x^2 + 3x = 2$, then the equation whose two roots are L and M is

(a) $3x^2 - 8x + 3 = 0$

(b) $x^2 - 3x + 8 = 0$

(c) $x^2 - 3x - 8 = 0$

(d) $3x^2 + 8x - 3 = 0$

(10) In the opposite figure :

If $\overline{AD} \parallel \overline{XY} \parallel \overline{BC}$

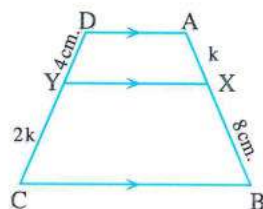
, then AX = cm.

(a) $\frac{3}{8}$

(b) 4

(c) 16

(d) 32



(11) In the opposite figure :

$\overline{XY} \parallel \overline{BC}$, $\overline{XZ} \parallel \overline{BY}$, AX = 6 cm. , XB = 9 cm.

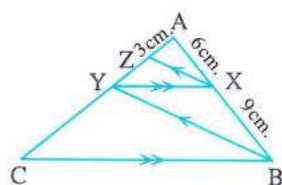
, AZ = 3 cm. , then the length of $\overline{ZC}$ = cm.

(a) 4.5

(b) $15\frac{3}{4}$

(c) 15

(d) $12\frac{3}{4}$



(12) In the opposite figure :

If the given lengths in cm.

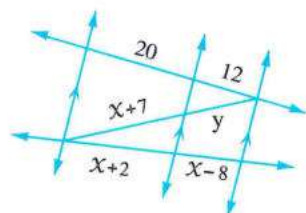
, then $x + y$ = cm.

(a) 23

(b) 18

(c) 41

(d) 51



2 Answer the following questions :

(1) If L and M are the two roots of the equation : $2x^2 - 3x - 1 = 0$,
then form the quadratic equations whose two roots are : $\frac{L}{M}$, $\frac{M}{L}$

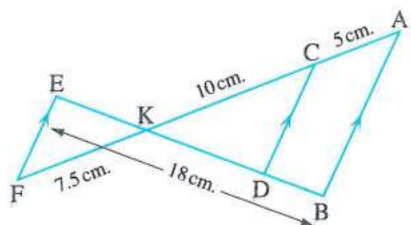
(2) In the opposite figure :

If $\overline{AB} \parallel \overline{CD} \parallel \overline{EF}$,

AC = 5 cm. , CK = 10 cm. ,

KF = 7.5 cm. , BE = 18 cm.

Find the length of each of : $\overline{BD}$, $\overline{DK}$ and $\overline{KE}$



كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

اختبار شهر نوفمبر





1 - 4

The relation between two roots of the second degree equation and the coefficients of its terms

First: Complete each of the following:

- ① if $x = 3$ is one of the roots of the equation $x^2 + Mx - 27 = 0$, then $M = \dots\dots\dots$ and the other root is $\dots\dots\dots$
- ② If the product of the two roots of the equation : $2x^2 + 7x + 3K = 0$ equals the sum of the two roots of the equation: $x^2 - (K + 4)x = 0$, then $K = \dots\dots\dots$
- ③ The quadratic equation which each of its two roots increases 1 than each of the two roots of the quadratic equation $x^2 - 3x + 2 = 0$ is $\dots\dots\dots$
- ④ The quadratic equation which each of its two roots decreases 1 than each of the two roots of the quadratic equation $x^2 - 5x + 6 = 0$ is $\dots\dots\dots$

Second: multiple choice

- ⑤ If one of the two roots of the equation $x^2 - 3x + c = 0$ is twice the other, then $c = \dots\dots\dots$
(A) -4
(B) -2
(C) 2
(D) 4
- ⑥ If one of the two roots of the equation $ax^2 - 3x + 2 = 0$ is the multiplicative inverse of the other, then $a = \dots\dots\dots$
(A) $\frac{1}{3}$
(B) $\frac{1}{2}$
(C) 2
(D) 3
- ⑦ If one of the two roots of the equation $x^2 - (b - 3)x + 5 = 0$ is the additive inverse of the other, then $b = \dots\dots\dots$
(A) -5
(B) -3
(C) 3
(D) 5

Third : Answer the following questions

- ⑧ Find the sum and the product of the two roots in each of the following equations:
(A) $3x^2 + 19x - 14 = 0$
(B) $4x^2 + 4x - 35 = 0$
 $\dots\dots\dots$
 $\dots\dots\dots$
- ⑨ Find the value of a , then find the other root in each of the following equations:
(A) If: $x = -1$ is one of the two roots of the equation $x^2 - 2x + a = 0$ $\dots\dots\dots$
(B) If: $x = 2$ is one of the two roots of the equation $ax^2 - 5x + a = 0$ $\dots\dots\dots$



10 Find the values of a and b if:

- A** 2 and 5 are the two roots of the equation $x^2 + a x + b = 0$
- B** -3 and 7 are the two roots of the equation $a x^2 - b x - 21 = 0$
- C** -1 and $\frac{3}{2}$ are the two roots of the equation $a x^2 - x + b = 0$
- D** $\sqrt{3}i$ and $-\sqrt{3}i$ are the two roots of the equation $x^2 + a x + b = 0$

11 Investigate the type of the two roots in each of the following equations, then find the solution set of each equation:

- A** $x^2 + 2x - 35 = 0$
- B** $2x^2 + 3x + 7 = 0$
- C** $x(x - 4) + 5 = 0$
- D** $3x(3x - 8) + 16 = 0$

12 Find the value of c, if the two roots of the equation $c x^2 - 12x + 9 = 0$ are equal.

.....

13 Find the value of a, if the two roots of the equation $x^2 - 3x + 2 + \frac{1}{a} = 0$ are equal.

.....

14 Find the value of c, if the two roots of the equation $3x^2 - 5x + c = 0$ are equal, then find the two roots.

.....

15 Find the value of K, if one a root of the equation $x^2 + (K - 1)x - 3 = 0$ is the additive inverse to the other root.

.....

16 Find the value of K, if one root of the equation $4Kx^2 + 7x + K^2 + 4 = 0$ is the multiplicative inverse to the other root.

.....

17 Form the quadratic equation whose two roots are :

- A** -2, 4
- B** $-5i, 5i$
- C** $\frac{2}{3}, \frac{3}{2}$
- D** $1 - 3i, 1 + 3i$
- E** $3 - 2\sqrt{2}i, 3 + 2\sqrt{2}i$

18 Find the quadratic equation in which each of the two roots is twice one of the roots of the equation $2x^2 - 8x + 5 = 0$

.....



- 19 Find the quadratic equation in which each of the two roots exceeds 1 than one of the two roots of the equation : $x^2 - 7x - 9 = 0$
- 20 Find the quadratic equation in which each of its two roots equals the square of the corresponding root of the equation : $x^2 + 3x - 5 = 0$
- 21 If L and M are the two roots of the equation $x^2 - 7x + 3 = 0$, then find the quadratic equation whose roots are:
- (A) $2L, 2M$ (B) $L + 2, M + 2$ (C) $\frac{2}{L}, \frac{2}{M}$ (D) $L + M, LM$



Sign of a Function

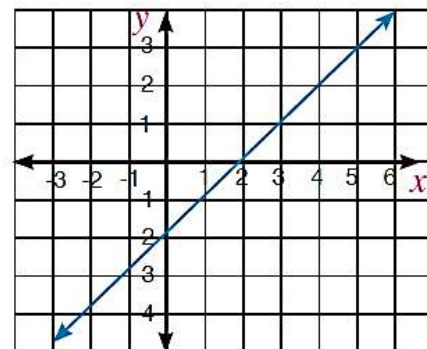
1 - 5

First : complete each of the following:

- ① The sign of the function f , where $f(x) = -5$ is in the interval
- ② The sign of the function f , where $f(x) = x^2 + 1$ is in the interval
- ③ The sign of the function f , where $f(x) = x^2 - 6x + 9$ is positive in the interval
- ④ The sign of the function f , where $f(x) = x - 2$ is positive in the interval
- ⑤ The sign of the function f , where $f(x) = 3 - x$ is negative in the interval
- ⑥ The sign of the function f , where $f(x) = -(x - 1)(x + 2)$ is positive in the interval
- ⑦ The sign of the function f , where $f(x) = x^2 + 4x - 5$ is negative in the interval

- ⑧ The figure opposite represents a first degree function in x :

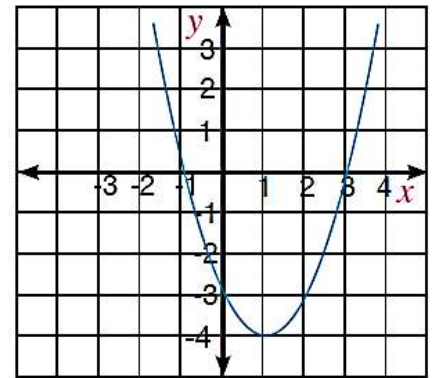
- A The function is positive in the interval
- B the function is negative in the interval





9 The figure opposite represents a second degree function in x :

- A $f(x) = 0$ when $x \in$
 B $f(x) > 0$ when $x \in$
 C $f(x) < 0$ when $x \in$



Second: answer the following questions:

10 In exercises from A to N, determine the sign of each of the following functions:

- | | |
|--------------------------------|-----------------------------------|
| A $f(x) = 2$ | B $f(x) = 2x$ |
| C $f(x) = -3x$ | D $f(x) = 2x+4$ |
| E $f(x) = 3 - 2x$ | F $f(x) = x^2$ |
| G $f(x) = 2x^2$ | H $f(x) = x^2 - 4$ |
| I $f(x) = 1 - x^2$ | J $f(x) = (x - 2)(x + 3)$ |
| K $f(x) = (2x - 3)^2$ | L $f(x) = x^2 - x - 2$ |
| M $f(x) = x^2 - 8x + 16$ | N $f(x) = -4x^2 + 10x - 25$ |

- 11 Graph the curve of the function $f(x) = x^2 - 9$ in the interval $[-3, 4]$, hence determine the sign of $f(x)$.
- 12 Graph the curve of the function $f(x) = -x^2 + 2x + 4$ in the interval $[-3, 5]$, hence determine the sign of $f(x)$.



Related angles

4 - 4

First: Complete each of the following:

① $\cos (180^\circ + \theta) = \dots\dots\dots$

② $\tan (180^\circ - \theta) = \dots\dots\dots$

③ $\csc (360^\circ - \theta) = \dots\dots\dots$

④ $\sin (360^\circ + \theta) = \dots\dots\dots$

⑤ $\sin (90^\circ + \theta) = \dots\dots\dots$

⑥ $\cot (90^\circ - \theta) = \dots\dots\dots$

⑦ $\sec (270^\circ + \theta) = \dots\dots\dots$

⑧ $\cos (270^\circ - \theta) = \dots\dots\dots$

Second: Complete each of the following with a measure of an acute angle

⑨ $\sin 25^\circ = \cos \dots\dots\dots^\circ$

⑩ $\cos 67^\circ = \sin \dots\dots\dots^\circ$

⑪ $\tan 42^\circ = \cot \dots\dots\dots^\circ$

⑫ $\csc 13^\circ = \sec \dots\dots\dots^\circ$

⑬ If $\cotan 2\theta = \tan\theta$ where $0^\circ < \theta < 90^\circ$ then $m(\angle \theta) = \dots\dots\dots$

⑭ If $\sin 5\theta = \cos 4\theta$ where θ is a positive acute angle, then $\theta = \dots\dots\dots^\circ$

⑮ If $\sec \theta = \sec (90^\circ - \theta)$, then $\cot \theta = \dots\dots\dots$

⑯ If $\tan 2\theta = \cot 3\theta$ where $\theta \in]0, \frac{\pi}{2}[$, then $m(\angle \theta) = \dots\dots\dots \text{rad}$

⑰ If $\cos \theta = \sin 2\theta$ where θ is a positive acute angle, then $\sin 3\theta = \dots\dots\dots$



Third: Multiple choice:

- 18 If $\tan (180^\circ + \theta) = 1$ where θ is the measure of the smallest positive angle , then measure of θ equals
 (A) 45° (B) 30° (C) 60° (D) 135°
- 19 If $\cos 2\theta = \sin \theta$ where $\theta \in]0, \frac{\pi}{2}[$ then $\cos 2\theta$ equals
 (A) $\frac{1}{\sqrt{2}}$ (B) $\frac{1}{2}$ (C) $\frac{\sqrt{3}}{2}$ (D) 1
- 20 If $\sin \alpha = \cos \beta$ where α and β are two acute angles, then $\tan (\alpha + \beta)$ equals
 (A) $\frac{1}{\sqrt{3}}$ (B) 1 (C) $\sqrt{3}$ (D) undefined
- 21 If $\sin 2\theta = \cos 4\theta$ where θ is a positive acute angle, then $\tan (90^\circ - 3\theta)$ equals.....
 (A) -1 (B) $\frac{1}{\sqrt{3}}$ (C) 1 (D) $\sqrt{3}$
- 22 If $\cos(90^\circ + \theta) = \frac{1}{2}$ where θ is the measure of the smallest positive angle , then measure of angle θ equals.....
 (A) 150° (B) 210° (C) 240° (D) 330°

Fourth: Answer the following question:

- 23 Find one of the values of θ where $0 \leq \theta < 90^\circ$ which satisfies each of the following:
 (A) $\sin(3\theta + 15^\circ) = \cos (2\theta - 5^\circ)$
 (B) $\sec (\theta + 25^\circ) = \csc (\theta + 15^\circ)$
 (C) $\tan(\theta + 20^\circ) = \cot (3\theta + 30^\circ)$
 (D) $\cos \frac{\theta + 20^\circ}{2} = \sin \frac{\theta + 40^\circ}{2}$
- 24 Find the value of each of the following:
 (A) $\sin 150^\circ$ (B) $\csc 225^\circ$ (C) $\sec 300^\circ$ (D) $\tan 780^\circ$
 (E) $\csc \frac{11\pi}{6}$ (F) $\sin \frac{7\pi}{4}$ (H) $\cot \frac{-2\pi}{3}$ (I) $\cos \frac{-7\pi}{4}$



- 25 If the terminal side of the angle θ drawn in the standard position intersects the unit circle at the point B $(-\frac{3}{5}, \frac{4}{5})$, then find:

A $\sin(180^\circ + \theta)$

B $\cos(\frac{\pi}{2} - \theta)$

C $\tan(360^\circ - \theta)$

D $\csc(\frac{3\pi}{2} - \theta)$

- 26 **Discover the error:** All the following answers are correct except one wrong. What is it?:

1- $\cos \theta$ equals

A $\sin(\theta - 270^\circ)$

B $\sin(270^\circ - \theta)$

C $\cos(360^\circ - \theta)$

D $\cos(360^\circ + \theta)$

2- $\sin \theta$ equals

A $\cos(\frac{\pi}{2} - \theta)$

B $\sin(\pi - \theta)$

C $\cos(\frac{3\pi}{2} + \theta)$

D $\sin(\frac{\pi}{2} + \theta)$

3- $\tan \theta$ equals

A $\cot(90^\circ - \theta)$

B $\cot(270^\circ - \theta)$

C $\tan(270^\circ - \theta)$

D $\tan(180^\circ + \theta)$



4 - 5

Graphing trigonometric functions

First: complete each of the following:

- ① The range of the function f where $f(\theta) = \sin\theta$ is
- ② The range of the function f where $f(\theta) = 2 \sin\theta$ is
- ③ The maximum value of the function f where $f(\theta) = 4\sin\theta$ is
- ④ The minimum value of the function f where $f(\theta) = 3\cos\theta$ is

Second: write the rule for each trigonometric function beside the corresponding figure to it.

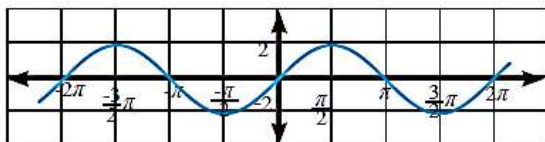


Figure (1) the rule is:

.....

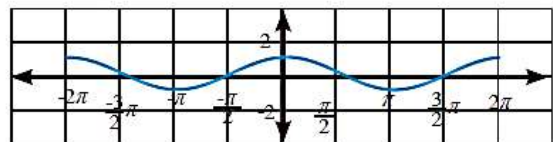


Figure (2) the rule is:

.....

Third: Answer the following questions:

- ⑤ Find the maximum and minimum values, then calculate the range of each of the following functions :

A $y = \sin\theta$

.....

B $y = 3 \cos\theta$

.....

C $y = \frac{3}{2} \sin\theta$

.....



2 - 3

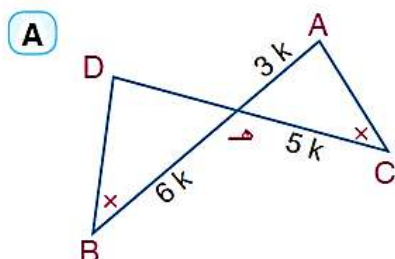
The Relation between the Areas of two Similar Polygons

1 Complete:

A If $\triangle ABC \sim \triangle XYZ$, and $AB = 3 XY$, then $\frac{\text{area}(\triangle XYZ)}{\text{area}(\triangle ABC)} = \dots\dots\dots$

B If $\triangle ABC \sim \triangle DEF$, area of $(\triangle ABC) = 9$ area of $(\triangle DEF)$ and $DE = 4\text{cm}$, then $AB = \dots\dots\dots \text{cm}$

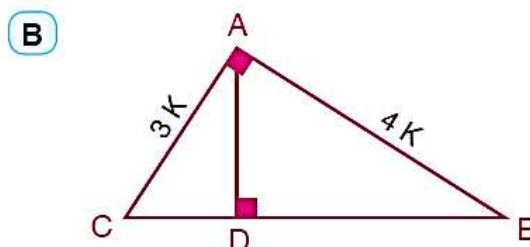
2 Study each of the following figures, where K is constant of proportion, then complete:



$$\overline{AB} \cap \overline{CD} = \{E\}$$

$$\text{area of } (\triangle ACE) = 900 \text{ cm}^2$$

$$\text{then: area of } (\triangle DEB) = \dots\dots\dots \text{ cm}^2$$



$$m(\angle BAC) = 90^\circ, \overline{AD} \perp \overline{BC}$$

$$\text{area of } (\triangle ADC) = 180 \text{ cm}^2 \text{ then:}$$

$$\text{area of } (\triangle ABC) = \dots\dots\dots \text{ cm}^2$$

3 ABC is a triangle, $D \in \overline{AB}$ where $AD = 2 BD$ and $E \in \overline{AC}$ where $\overline{DE} \parallel \overline{BC}$
If the area of $\triangle ADE = 60\text{cm}^2$, find the area of the trapezium DBCE.

.....
.....

4 ABC is a right angled triangle at B. The equilateral triangles ABX, BCY, and ACZ are drawn. prove that : area of $(\triangle ABX) + \text{area of } (\triangle BCY) = \text{area of } (\triangle ACZ)$.

.....
.....



- ⑤ ABC is an inscribed triangle in a circle where $\frac{AB}{BC} = \frac{4}{3}$. from the point B, a tangent is drawn to the circle and intersects $\overrightarrow{AC}$ at E.

prove that: $\frac{\text{area of } (\triangle ABC)}{\text{area of } (\triangle ABE)} = \frac{7}{16}$

.....

.....

- ⑥ ABCD is a parallelogram, $X \in \overrightarrow{AB}$, $X \notin \overline{AB}$, where $BX = 2AB$, $Y \in \overrightarrow{CB}$, $Y \notin \overline{CB}$, where $BY = 2BC$. the parallelogram BXZY is drawn, prove that: $\frac{\text{area of } (ABCD)}{\text{area of } (XBYZ)} = \frac{1}{4}$

.....

.....

- ⑦ ABC is a right angled triangle at B, $\overline{BD} \perp \overline{AC}$ and intersects it at D. The squares AXYB and BMNC are drawn on $\overline{AB}$ and $\overline{BC}$ respectively outside the triangle ABC:

- A** Prove that polygon DAXYB = polygon DBMNC
- B** If $AB = 6\text{cm}$ and $AC = 10\text{cm}$, find the ratio between the areas of the two polygons.

.....

.....

- ⑧ ABC is a triangle, $\overline{AB}$, $\overline{CB}$ and $\overline{AC}$ are corresponding sides to three similar polygons X, Y, Z drawn outside the triangle respectively. If the area of polygon X equals 40 cm^2 , area of polygon Y equals 85 cm^2 and area of polygon Z equals 125 cm^2 . Prove that: the triangle ABC is right angled.

.....

.....

- ⑨ ABCD is a square, $\overline{AB}$, $\overline{BC}$, $\overline{CD}$ and $\overline{DA}$ are divided in the ratio 1 : 3 by the points X, Y, Z and L respectively.

Prove that:

- A** XYZL is a square

B $\frac{\text{Area of the square XYZL}}{\text{Area of the square ABCD}} = \frac{5}{8}$

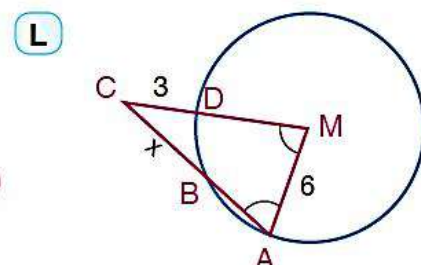
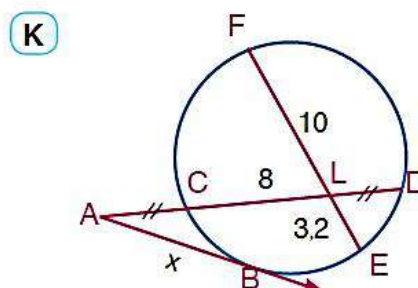
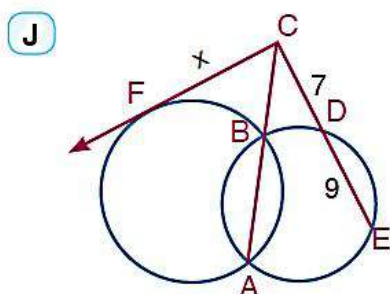
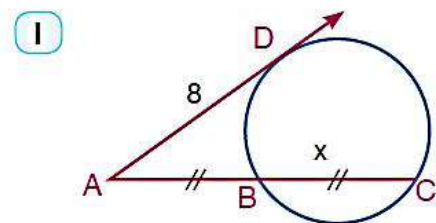
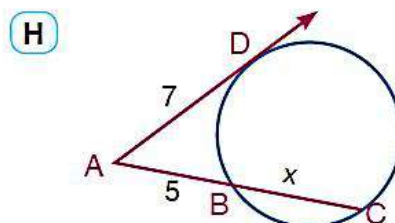
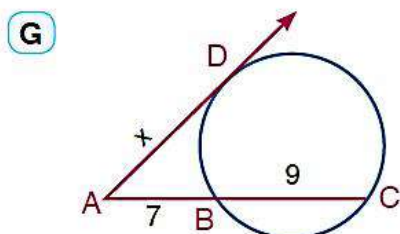
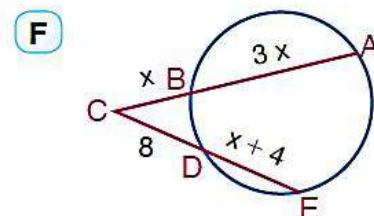
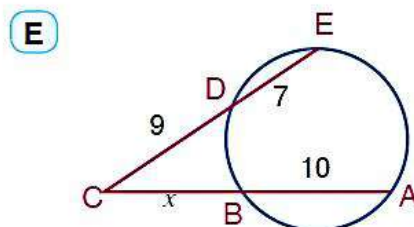
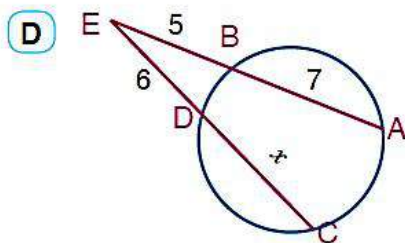
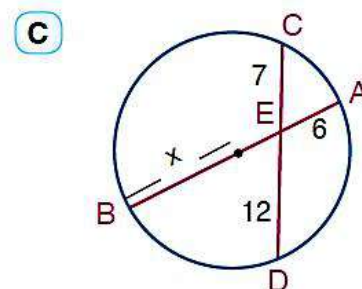
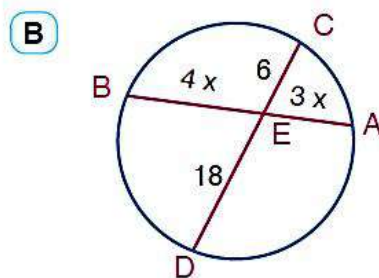
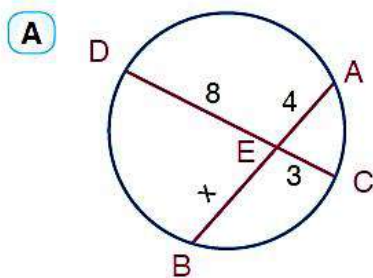
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2 - 4

Applications of similarity in the circle

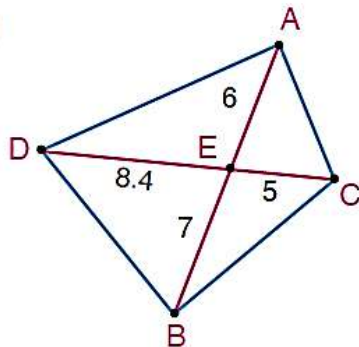
- 1 Use the calculator or mental math to find the numerical value of x in each of the following figures. (lengths are measured in centimetres)



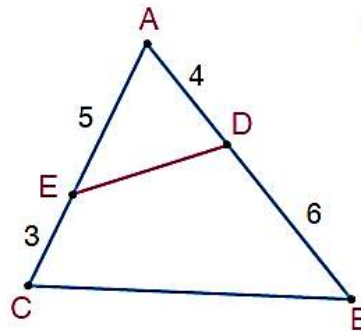


- ② In which of the following figures, the points A, B, C and D Lie on a circle? Explain your answer. (the lengths are measured in centimetres)

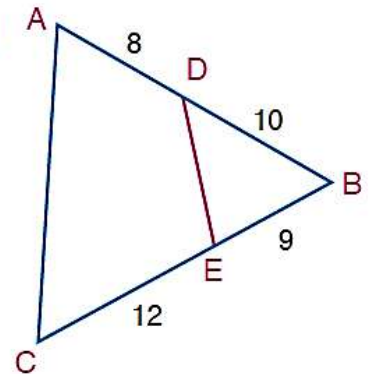
(A)



(B)

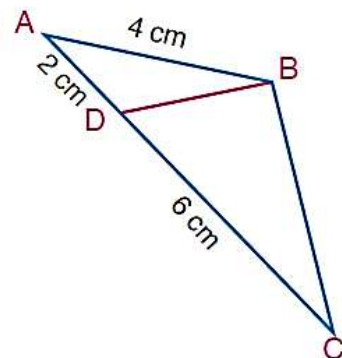


(C)

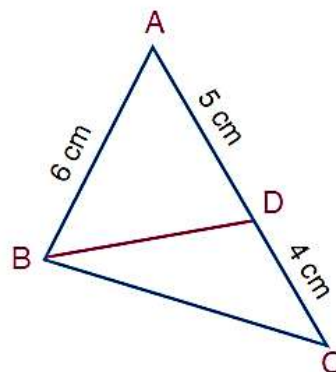


- ③ In which of the following figures, $\overline{AB}$ is a tangent to the circle passing through the points B, C and D.

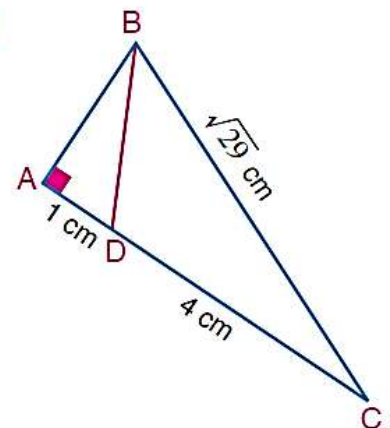
(A)



(B)



(C)

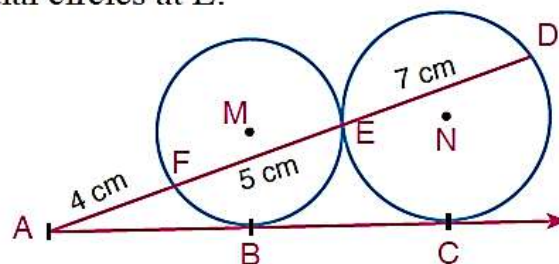


- ④ Two circles are intersected at A and B. $C \in \overleftrightarrow{AB}$ and $C \notin \overline{AB}$, From C, The two tangent segments $\overline{CX}$ and $\overline{CY}$ are drawn to the circle at X and Y respectively. Prove that $CX = CY$.



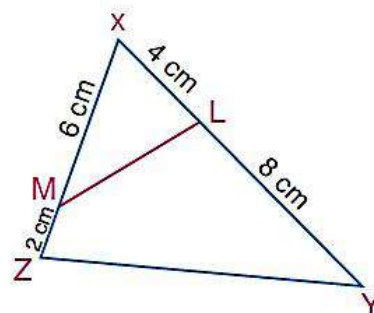
- 5 In the figure opposite: M and N are two tangential circles at E.

$\overrightarrow{AC}$ touches the circle M at B, and touches the circle N at C, $\overrightarrow{AE}$ intersects the two circles at F and D respectively, where $AF = 4\text{cm}$, $FE = 5\text{cm}$, $ED = 7\text{cm}$.
Prove that B is the midpoint of $\overline{AC}$



- 6 In the figure opposite: $L \in \overline{XY}$ where $XL = 4\text{cm}$, $YL = 8\text{cm}$, $M \in \overline{XZ}$ where $XM = 6\text{cm}$, $ZM = 2\text{cm}$.
Prove that:

- A $\triangle XLM \sim \triangle XZY$
B $LYZM$ is a cyclic quadrilateral.



- 7 $\overline{AB} \cap \overline{CE} = \{E\}$, $AE = \frac{5}{12} BE$, $DE = \frac{3}{5} EC$. If $BE = 6\text{cm}$ and $CE = 5\text{cm}$.
prove that the points A, B, C and D lie on one circle.

- 8 $\triangle ABC$ is a triangle. $D \in \overline{BC}$ where $DB = 5\text{cm}$ and $DC = 4\text{cm}$. If $AC = 6\text{cm}$. Prove that:

- A $\overline{AC}$ is a tangent segment to the circle passing through the points A, B and D.
B $\triangle ACD \sim \triangle BCA$
C Area of $(\triangle ABD)$: area of $(\triangle ABC) = 5 : 9$



- 9 Two concentric circles at M, their radii are 12cm, 7cm, $\overline{AD}$ is a chord in the larger circle to intersect the smaller circle at B and C respectively. Prove that $AB \times BD = 95$

.....

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.....

- 10 ABCD is a rectangle in which $AB = 6\text{cm}$ and $BC = 8\text{cm}$. $\overrightarrow{BE} \perp \overline{AC}$ and intersects $\overline{AC}$ at E and $\overline{AD}$ at F.

A Prove that $(AB)^2 = AF \times AD$.

B Find the length of $\overline{AF}$.

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حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

اختبار شهر نوفمبر



Exercises (4)

1) Without solving the equation **find** the sum and the product of the two roots of the following equations :

(1) $4x^2 + 4x - 35 = 0$

.....

(2) $3x^2 = 23x - 30$

.....

(3) $(2x - 3)(x + 2) = 0$

.....

2) If the product of the two roots of the equation: $3x^2 + 10x - c = 0$ is $\frac{-8}{3}$.
Find the value of c, and then **solve** the equation in the set of complex number.

.....

.....

3) If the sum of two roots of the equation: $2x^2 + bx - 5 = 0$ is $\frac{-3}{2}$, find the value of b, then **solve** the equation in the set of the complex number.

.....

.....

4) **Find** the other root of the equation, then find the value of a in each of the following :

(a) If : $x = -2$ is one of the two roots of the equation: $x^2 - 2x + a = 0$

.....

(b) If : $(1+i)$ is one of the two roots of the equation: $x^2 - 2x + a = 0$

.....

5) **Find** the value of a, b in each of the following equations, If:

(a) 5, 3 are the two roots of the equation: $x^2 + ax + b = 0$

.....

(b) $3i, -3i$ are the two roots of the equation: $x^2 + ax + b = 0$

.....

Exercises (5)

1) Form the quadratic equation whose two roots are :

- (1) $-2, 4$
- (2) $-5i, 5i$
- (3) $3 - 2\sqrt{2}i, 3 + 2\sqrt{2}i$

2) If L and M are the two roots of the equation: $x^2 - 7x + 5 = 0$ Then Find the numerical value of each of the following expressions

- (1) $L^2M + M^2L$
- (2) $\frac{1}{M} + \frac{1}{L}$
- (3) $(L - 2)(M - 2)$

3) If L and M are the two roots of the equation: $x^2 - 3x - 5 = 0$, Then **Find** the equation whose roots are: $L - 4$ and $M - 4$

4) If L and M are the two roots of the equation : $x^2 + 3x - 5 = 0$, Then **Form** the quadratic equation whose roots are : L^2 and M^2

5) Find the quadratic equation in which each of the two roots exceeds One of the two roots of the equation : $x^2 - 7x - 9 = 0$

Exercises (6)

1] Investgate the sign of the functions which are defined by the following rules

- (1) $f(x)=-5$ (2) $f(x)=2$
 (3) $f(x)=2x$ (4) $f(x)=-3x$
 (5) $f(x)=2x+4$

2] Determine the sign of each of the following functions which are defined by the following rules , Then represent your answer on the number line :

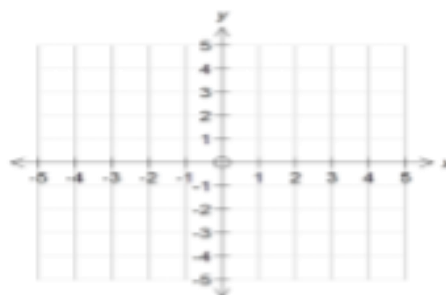
- (1) $f(x) = x^2 - 8x + 16$

 (2) $f(x) = -4x^2 + 10x - 25$

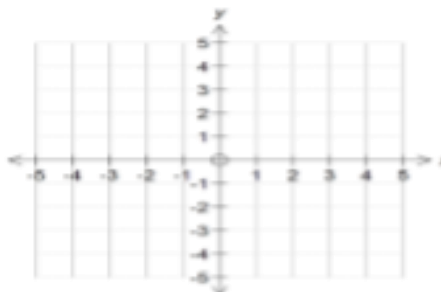
 (3) $f(x) = (x - 2)(x + 3)$

 (4) $f(x) = (2x - 3)^2$

3] Draw the curve of the function $f: f(x) = x^2 - 9$ in the interval $[-3, 4]$. From the graph , determine the sign of f in that interval.



4] Draw the curve of the function $f: f(x) = -x^2 + 2x + 4$ in $[-3, 5]$. From the graph , determine the sign off in that interval.



Exercises (4)

Choose the correct answer :

- (1) If $\sin \theta = \cos 2\theta$, $\theta \in]0, \frac{\pi}{2}[$, then $\sin 3\theta = \dots\dots\dots$
 (a) $\frac{1}{2}$ (b) 1 (c) zero (d) $\frac{\sqrt{3}}{2}$
- (2) If $\tan \theta = \cot 2\theta$, $0^\circ < \theta < 90^\circ$, then $\sin \theta + \cos 2\theta = \dots\dots\dots$
 (a) 1 (b) -1 (c) 2 (d) $\frac{1}{4}$
- (3) If $\sin \alpha = \cos \beta$ where α and β are two acute angles, then $\tan(\alpha + \beta) = \dots\dots\dots$
 (a) $\frac{1}{\sqrt{3}}$ (b) 1 (c) $\sqrt{3}$ (d) undefined
- (4) If $\sin 2\theta = \cos 4\theta$ where θ is a positive acute angle, then $\tan(90^\circ - 3\theta) = \dots\dots\dots$
 (a) -1 (b) $\frac{1}{\sqrt{3}}$ (c) 1 (d) $\sqrt{3}$
- (5) If $5 \cos(90^\circ - \theta) = 4$, $0^\circ < \theta < 90^\circ$, then $\sin \theta = \dots\dots\dots$
 (a) $\frac{5}{4}$ (b) $\frac{-3}{5}$ (c) $\frac{4}{5}$ (d) $\frac{3}{5}$
- (6) If $\cot(90^\circ + \theta) + 1 = 0$ where $0^\circ < \theta < 90^\circ$, then $\cos 4\theta = \dots\dots\dots$
 (a) $\frac{1}{2}$ (b) 1 (c) zero (d) -1
- (7) If $\cos(90^\circ + \theta) + \sin(90^\circ - 2\theta) = 0$, where $\theta \in]0, \frac{\pi}{4}[$, then $\sin 2\theta = \dots\dots\dots$
 (a) $\frac{1}{2}$ (b) 1 (c) zero (d) $\frac{\sqrt{3}}{2}$
- (8) If $\cos(270^\circ - \theta) = \frac{1}{2}$ where θ is the measure of the smallest positive angle, then $\theta = \dots\dots\dots$
 (a) 30° (b) 150° (c) 210° (d) 330°
- (9) If $\tan \theta = \frac{-5}{12}$, $\cos \theta < 0$, then $\csc \theta = \dots\dots\dots$
 (a) $\frac{5}{13}$ (b) $\frac{-5}{13}$ (c) $\frac{13}{5}$ (d) $\frac{-13}{5}$
- (10) If $\sin \theta = -\frac{1}{2}$, $\tan \theta > 0$, then $\theta = \dots\dots\dots$
 (a) 30° (b) 150° (c) 210° (d) 330°

Complete the following :

(1) $\tan 42^\circ = \cot \dots^\circ$

(3) $\sin 25^\circ = \cos \dots^\circ$

(5) $\cos (90^\circ - \theta) = \dots$

(7) $\csc (360^\circ - \theta) = \dots$

(9) $\sec (270^\circ - \theta) = \dots$

(11) $\cos (\theta - 90^\circ) = \dots$

(13) $\frac{\sec 105^\circ}{\csc 15^\circ} = \dots$

(15) $\tan 120^\circ = \tan (90^\circ + \dots) = -\cot \dots^\circ = \dots$

(16) $\sin 300^\circ = \sin (360^\circ - \dots) = -\sin \dots^\circ = \dots$

(17) $\cos \theta + \cos (180^\circ - \theta) = \dots$

(18) $\sin \theta + \cos (270^\circ + \theta) = \dots$

(19) If α , β are the measures of two complementary angles and $\sin \alpha = \frac{3}{5}$, then $\cos \beta = \dots$

(20) If $\sin 2\theta = \cos 3\theta$, $0^\circ < \theta < 90^\circ$, then $\theta = \dots^\circ$

(21) If $\tan 2\theta = \cot 3\theta$ where $\theta \in]0, \frac{\pi}{2}[$, then $\theta = \dots$ rad

(22) If $\cos \theta = \sin 2\theta$ where θ is positive acute angle , then $\sin 3\theta = \dots$

(23) If $\sin \theta = \sin (90^\circ - \theta)$, then $\tan \theta = \dots$

(24) If $\csc \theta = \frac{2}{\sqrt{3}}$, $\theta \in]0, \frac{3\pi}{2}[$, then $\theta = \dots^\circ$ or $\theta = \dots^\circ$

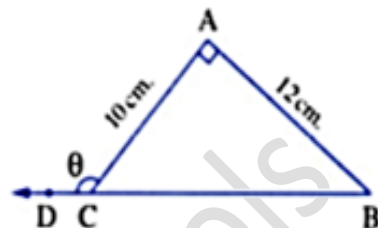
(25) If $\cot 2\theta - \tan \theta = 0$ where θ is the measure of a positive acute angle , then $\theta = \dots^\circ$

By using the calculator , choose the correct answer :

(1) In the opposite figure :

$D \in \overline{BC}$, $AC = 10$ cm. , $AB = 12$ cm. , then $\cot \theta = \dots\dots\dots$

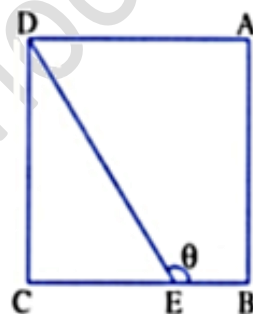
- (a) $\frac{6}{5}$ (b) $-\frac{6}{5}$
(c) $\frac{5}{6}$ (d) $-\frac{5}{6}$



(2) In the opposite figure :

ABCD is a square , $CE = 2 BE$, then $\tan \theta = \dots\dots\dots$

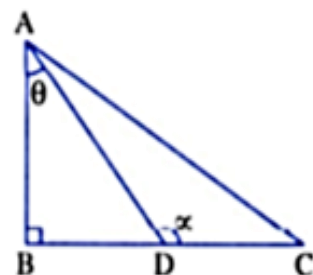
- (a) $-\frac{3}{2}$ (b) $-\frac{2}{3}$
(c) $\frac{1}{2}$ (d) $\frac{2}{3}$



(3) In the opposite figure :

$\triangle ABC$ is a right-angled triangle at B , $\tan \theta = \frac{3}{4}$,
then $\cos \alpha = \dots\dots\dots$

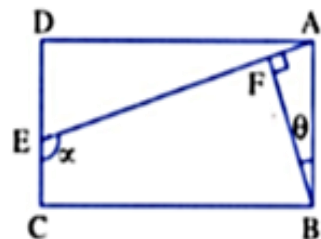
- (a) $\frac{3}{4}$ (b) $-\frac{3}{4}$
(c) $\frac{4}{5}$ (d) $-\frac{3}{5}$



(4) In the opposite figure :

ABCD is a rectangle , $\tan \theta = \frac{1}{3}$, $\overline{BF} \perp \overline{AE}$,
then $\cot \alpha = \dots\dots\dots$

- (a) $\frac{1}{3}$ (b) $\frac{3}{4}$
(c) $-\frac{1}{3}$ (d) $\frac{2}{3}$





Exercises (5)

1) Complete the following :

- (1) The range of the function f where $f(\theta) = \sin \theta$ is
- (2) The range of the function f where $f(\theta) = 2 \sin \theta$ is
- (3) If : $f(x) = 4 \sin \theta$, then the range of the function is.....
- (4) If : $f(x) = \cos 5 \theta$, then the range of the function is.....
- (5) The maximum value of the function $f : f(\theta) = 4 \sin \theta$ is.....
- (6) The minimum value of the function f where : $f(\theta) = 5 \sin \theta$ is.....
- (7) function $f : f(\theta) = 2 \sin 4 \theta$ is a periodic function and its period =.....

2] Find the maximum and minimum values , Then calculate the range of each of the following functions :

- (1) $y = \sin \theta$ (2) $y = \frac{1}{2} \sin \theta$ (3) $y = 3 \cos \theta$ (4) $y = \frac{3}{2} \cos \theta$
-
-
-

3 Multiple choice:

- ① If $\sin \theta = 0.4325$ where θ is a positive acute angle, then $m(\angle \theta)$ equals
(A) 25.626°
(B) 64.347°
(C) 32.388°
(D) 46.316°
- ② If $\tan \theta = 1.8$ and $90^\circ \leq \theta \leq 360^\circ$, then $m(\angle \theta)$ equals
(A) 60.945°
(B) 119.055°
(C) 240.945°
(D) 299.055°

4 Use the degree measure to find the smallest positive angle which satisfies each of the following:

- | | | |
|---------------------------|------------------------|---------------------------|
| (A) $\sin^{-1} 0.6$ | (B) $\cos^{-1} 0.436$ | (C) $\tan^{-1} 1.4552$ |
| (D) $\sec^{-1} (-2.2364)$ | (E) $\cot^{-1} 3.6218$ | (F) $\csc^{-1} (-1.6004)$ |

Exercises (3)

1 Complete the following :

(1) If two angles in one triangle are congruent to their corresponding angles in another triangle , then the two triangles are

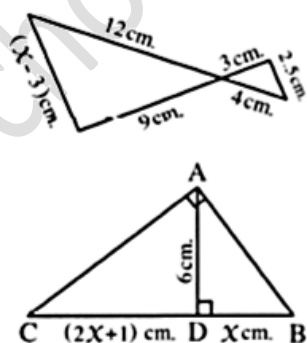
(2) If the ratio between the perimeters of two similar polygons is 4 : 9 , then the ratio between their areas is

(3) In the opposite figure :

$$x = \dots\dots\dots$$

(4) In the opposite figure :

$$x = \dots\dots\dots$$

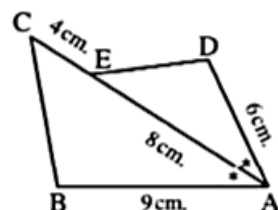


2 In the opposite figure :

$\overrightarrow{AE}$ bisects $\angle DAB$

, area of $\triangle ADE = 12 \text{ cm}^2$.

Find the area of : $\triangle ABC$



3 ABCD , XYZL are two similar polygons. If M is the midpoint of $\overline{BC}$

N is the midpoint of $\overline{YZ}$, $AM = 4 \text{ cm}$, $XN = 9 \text{ cm}$.

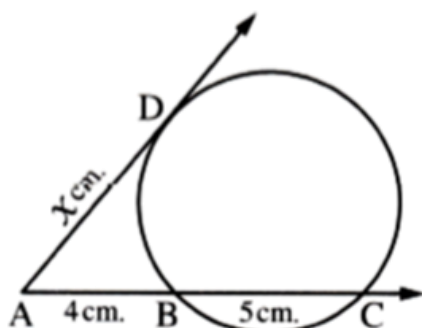
, prove that :

area of polygon ABCD : area of polygon XYZL = 16 : 81

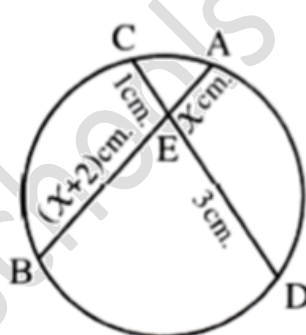
Exercises (4)

1 Find the numerical value of x in each of the following figures :

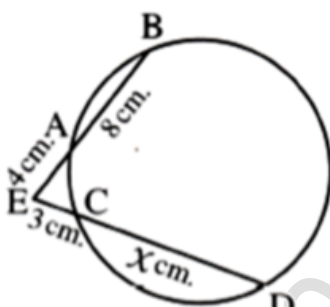
(1)



(2)



(3)

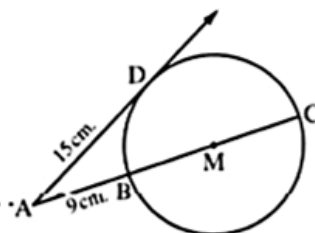


(4)



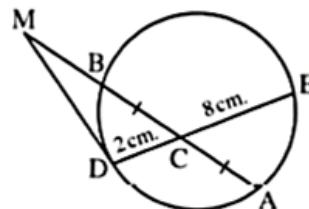
2

In the opposite figure : $\overline{AD}$ is a tangent to the circle M at D where $AD = 15$ cm. , if $AB = 9$ cm.
Calculate the radius length of the circle.



3

In the opposite figure : $\overline{AB} \cap \overline{DE} = \{C\}$, $CA = CB$
 , $CD = 2$ cm. , $CE = 8$ cm.
 , $\overline{MD}$ is a tangent segment to the circle and $MB = \frac{1}{2} AB$
Find the length of : $\overline{MD}$



كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

